Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Infection control after hematopoietic cell transplantation (HCT): percentage of patients who had HCT and were at risk for cytomegalovirus (CMV) and were prescribed a CMV disease prevention program for 100 days after HCT.

Source(s)

Proposed infection control after HCT measure set: questionnaire, patient selection, measures with specifications, glossary. Arlington Heights (IL): American Society for Blood and Marrow Transplantation; 20 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of patients who had hematopoietic cell transplantation (HCT) and were at risk for cytomegalovirus (CMV) and were prescribed a CMV disease prevention program for 100 days after HCT.

Rationale

In the past decade, modifications in hematopoietic cell transplantation (HCT) management and supportive care have resulted in changes in recommendations for the prevention of infection in HCT patients. These changes are fueled by new antimicrobial agents, increased knowledge of immune reconstitution, and expanded conditioning regimens and patient populations eligible for HCT. Despite these advances, infection is reported as the primary cause of death in 8% of autologous HCT patients and 17% to 20% of allogeneic HCT recipients.

Support (verbatim) from guidelines: HCT candidates should be tested for the presence of serum anti-cytomegalovirus (CMV) immunoglobulin G (IgG) antibodies before transplantation to determine their risk for primary CMV infection and reactivation after HCT.

HCT recipients at risk for posttransplant CMV disease (i.e., all CMV-seropositive HCT recipients, and all CMV-seronegative recipients with a

CMV-seropositive donor) should be placed on a CMV disease prevention program from the time of engraftment until at least 100 days after HCT (i.e., phase II). Physicians should use either prophylaxis or preemptive treatment for allogeneic recipients. In selecting a CMV disease prevention strategy, physicians should assess the risks and benefits of each strategy, the needs and condition of the patient, and the hospital's virology laboratory support capability.

A prophylaxis strategy against early CMV replication (i.e., less than 100 days after HCT) for allogeneic recipients involves administering prophylaxis to all allogeneic recipients at risk throughout the period from engraftment to 100 days after HCT. Ganciclovir, high-dose acyclovir, and valacyclovir have all shown efficacy in randomized studies in reducing the risk for CMV infection after HCT. If ganciclovir is used, the induction course is usually started at engraftment, although a brief prophylactic course can be added during pretransplant conditioning. If acyclovir or valacyclovir is used, the patient must also undergo viral monitoring and receive preemptive antiviral therapy if evidence of CMV replication is found. Intravenous immunoglobulin (IVIG) is not recommended for CMV disease prophylaxis among HCT recipients.

Statement (verbatim) from guidelines on gap: During phase II, infections relate primarily to impaired cell-mediated immunity. The scope and impact of this defect is determined by the extent of graft-versus-host disease (GVHD) and immunosuppressive therapy for it. Herpesviruses, particularly CMV, are common infectious agents during this period.

During phase III, persons with chronic GVHD (cGVHD) and recipients of alternate-donor allogeneic transplants remain most at risk for infection. Common pathogens include CMV, varicella-zoster virus (VZV), and infections with encapsulated bacteria (e.g., *Streptococcus pneumoniae*). The relative risk for these infections is approximately proportional to the severity of the patient's GVHD during phases II and III.

Statement from the American Society for Blood and Marrow Transplantation (ASMBT) Task Force on gap: As a common post-transplant infection, we believe there is no significant gap in the initiation of CMV prevention immediately post-transplant. However, we note gaps in our academic institutions of loss of follow up due to length of therapy (100 days) resulting in increased risk for infection.

Evidence for Rationale

Pasquini MC, Wang Z. Current use and outcome of hematopoietic stem cell transplantation: CIBMTR summary slides. 2012.

Boeckh M, Gooley TA, Myerson D, Cunningham T, Schoch G, Bowden RA. Cytomegalovirus pp65 antigenemia-guided early treatment with ganciclovir versus ganciclovir at engraftment after allogeneic marrow transplantation: a randomized double-blind study. Blood. 1996 Nov 15;88(10):4063-71. PubMed

Goodrich JM, Bowden RA, Fisher L, Keller C, Schoch G, Meyers JD. Ganciclovir prophylaxis to prevent cytomegalovirus disease after allogeneic marrow transplant. Ann Intern Med. 1993 Feb 1;118(3):173-8. PubMed

Ljungman P, de La Camara R, Milpied N, Volin L, Russell CA, Crisp A, Webster A, Valacyclovir International Bone Marrow Transplant Study Group. Randomized study of valacyclovir as prophylaxis against cytomegalovirus reactivation in recipients of allogeneic bone marrow transplants. Blood. 2002 Apr 15;99(8):3050-6. PubMed

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Tomblyn M, Chiller T, Einsele H, Gress R, Sepkowitz K, Storek J, Wingard JR, Young JA, Boeckh MJ, Center for International Blood and Marrow Research, National Marrow Donor program, European Blood and Marrow Transplant Group, American Society of Blood and Marrow Transplantation, Canadian Blood and Marrow Transplant Group, Infectious Diseases Society of America, Society for Healthcare Epidemiology of America, Association of Medical Microbiology and Infectious Disease Canada, Centers for Disease Control and Prevention. Guidelines for preventing infectious complications among hematopoietic cell transplantation recipients: a global perspective. Biol Blood Marrow Transplant. 2009 Oct;15(10):1143-238. PubMed

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Primary Health Components

Hematopoietic cell transplantation (HCT); cytomegalovirus (CMV); CMV disease prevention program

Denominator Description

The number of patients in your selection having hematopoietic cell transplantation (HCT) AND at risk for cytomegalovirus (CMV) (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

The number of patients in your selection having hematopoietic cell transplantation (HCT) AND at risk for cytomegalovirus (CMV) AND were prescribed a CMV disease prevention program for 100 days after HCT (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Unspecified

Extent of Measure Testing

The Infection Control (IC) measure set was developed by the American Society for Blood and Marrow Transplantation (ASBMT) using a rigorous methodology (adapted from the American Medical Association's Physician Consortium for Performance Improvement [AMA-PCPI] and including field testing) and adapted for use in Practice Improvement Modules (PIMs) by the American Board of Internal Medicine (ABIM).

Evidence for Extent of Measure Testing

Joseph TL. (Executive Director, American Society for Blood and Marrow Transplantation). Personal communication. 2013 Jan 21. 1 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Hospital Inpatient

Hospital Outpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Clinical Practice or Public Health Sites

Statement of Acceptable Minimum Sample Size

Specified

Target Population Age

All ages

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Making Care Safer
Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Safety

Data Collection for the Measure

Case Finding Period

12 months

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Encounter

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

The number of patients in your selection having hematopoietic cell transplantation (HCT) AND at risk for cytomegalovirus (CMV)

Note: Patients can be included in the chart abstraction if:

- They have been seen by the practice within the past 12 months; and
- Management decisions regarding care are made primarily by providers in the practice.

Select at least 25 of your patients who have had HCT. Refer to the original measure documentation for administrative codes.

Exclusions

None

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

The number of patients in your selection having hematopoietic cell transplantation (HCT) AND at risk for cytomegalovirus (CMV)* AND were prescribed a CMV disease prevention program for 100 days after HCT

Note: This requires documentation in the patient's medical record that the patient was at risk for CMV and a CMV disease prevention program was ordered to begin at the time of engraftment until at least 100 days after HCT (see the original measure documentation for details).

**At risk for CMV*: All CMV-seropositive HCT recipients, and all CMV-seronegative recipients with a CMV-seropositive donor.

Exclusions

None

Numerator Search Strategy

Fixed time period or point in time

Data Source

Administrative clinical data

Paper medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

Patients who had HCT and were at risk for CMV and were prescribed a CMV disease prevention program for 100 days after HCT.

Measure Collection Name

Infection Control after Hematopoietic Cell Transplantation Measure Set

Submitter

American Society for Blood and Marrow Transplantation - Professional Association

Developer

American Society for Blood and Marrow Transplantation - Professional Association

Funding Source(s)

American Society for Blood and Marrow Transplantation

Composition of the Group that Developed the Measure

The American Society for Blood and Marrow Transplantation (ASBMT) Education Practice Improvement Modules Task Force:

- Linda Burns, MD (*chair*)
- Stephan A Grupp, MD, PhD
- Mark B Juckett, MD
- Vivek Roy, MD
- Edward Agura, MD
- Miguel-Angel Perales, MD
- Thomas Joseph, MPS, CAE, ASBMT Executive Director
- Sue Frechette, BSN, MBA Consultant

Financial Disclosures/Other Potential Conflicts of Interest

Conflicts, if any, are disclosed in accordance with the American Society for Blood and Marrow Transplantation (ASBMT) conflict of interest policy.

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2012 Apr

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in February 2017.

Measure Availability

Source not available electronically.

For more information, contact the American Society for Blood and Marrow Transplantation (ASBMT) at 85 W. Algonquin Road, Suite 550, Arlington Heights, IL 60005; Phone: 847-427-0224; Fax: 847-427-9656; Web site: www.asbmt.org; E-mail: mail@asbmt.org.

NQMC Status

This NQMC summary was completed by ECRI Institute on September 24, 2013. The information was verified by the measure developer on October 25, 2013.

The information was reaffirmed by the measure developer on February 8, 2017.

Copyright Statement

Production

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